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Compositionality: the real problem

Bart Geurts (Nijmegen)

The Compositionality Principle is usually formulated along the following lines:

(C) The meaning of a complex expression α is a function of the meanings of α 's parts and α 's grammatical structure.

If English abides by (C), the meaning of “Fred snores” is a function of (i) the meanings of “Fred” and “snores” and (ii) the fact that “Fred snores” is formed by combining “Fred” and “snores” in accordance with this or that rule of English grammar.

There are various ways of construing (C), some stronger than others, but more often than not its supporters have a pretty strong version in mind. For instance, someone endorsing the principle will typically be taking it for granted that the “parts” referred to in (C) are α 's *immediate* constituents, so that “likes” and “fish” do not count as parts of “Betty likes fish”. On the other hand, it is easy to interpret (C) in such a way that it becomes empty: unless severe constraints are imposed on what is and is not to count as meaning or grammatical structure, any language can be made to satisfy (C). Let us assume, however, that this is not how the principle is intended.

(C) is sometimes called “Frege’s principle”, but it is well known that nowhere in his writings does Frege endorse the principle in so many words. He was wiser than that.

Logical languages are preferably designed to satisfy (C) even on its strictest construal. But is there any reason to expect that natural languages are compositional in anything but a trivial sense? Not as far as I know.

There are a number of stock-in-trade arguments, of course. How can we explain the fact that we routinely understand sentences we have never encountered before? How can we explain the fact that, as a rule, someone who understands “Fred hugged the cat” will also understand “The cat hugged Fred”? The answers to these questions, it is still sometimes suggested, cannot fail to appeal to compositionality. But they *can*, as even the most avid adherents of (C) have begun to realise, so none of these arguments are any good.

The Latter-Day Orthodoxy is that (C) is a *heuristic* principle. It’s simply a matter of sane methodology to adopt (C). What kind of methodology is this? I’m not sure, but I suspect that, deep deep down, what the Latter-Day Orthodox really want to say is something like (M):

(M) semantics =_{def} type theory with lambda abstraction

On this reading, the meaning of (C) goes beyond its compositional content: it is an idiomatic way of expressing (M). If so, it is more aptly called an article of faith than a heuristic principle.

Of course, the burden of proof will have to be shouldered by those theorists who choose to maintain that natural languages are compositional. But still it may be useful to recall, if only briefly, what are the reasons for doubting that natural languages comply with principle (C). As far as I can see, the usual reasons are perfectly sound: idioms, attitude contexts, presupposition — that sort of thing. Also, I confess to harbouring doubts about the notion that there is such a thing as *the* meaning of an expression. This is not to say that natural languages are ambiguous; they are, but that is not my point. Rather, I have the following aporia. If (C) holds, it must be the case that,

once an expression α has been disambiguated, there is this super-duper-special kind of content that α can only have one of, i.e. “the meaning of α ”. I completely fail to see why this should be so.

Let me explain myself by way of a small case study. Consider a simple sentence like, “She snores.” What are we going to say about it? What indeed? My first (and last) impulse is something like the following. The pronoun serves as an instruction to the hearer to recover a suitable referent, and once the hearer has identified Betty (say) as the intended referent, the sentence may be construed as saying that Betty snores. Let us call this the Plain Common Sense view on anaphora.

Unfortunately, we are told, PCS will not do. Why not? That is never made very precise, but the comments it provokes will generally take the following form:

... blablabla ... procedural ... blablabla ... poorly understood ... blablabla ...
non-compositional ...

One sometimes gets the impression that non-compositional analyses are *ipso facto* “poorly understood”. Poorly understood by whom? That is never made very precise, either, but it seems that compositionality buffs have a remarkably hard time understanding non-compositional theories — which is odd, because such theories tend to be simpler than their compositional counterparts.

One feature of the PCS approach that compositionality fans are bound to find unsettling is that it puts little store in sentence meanings. What, according to PCS, is *the* meaning of “She snores”? The answer I am tempted to give is that there is none: I don’t see the need for such things as sentence meanings.

No meaning, no compositionality. Fortunately, however, the Compositionality Squad is able to provide an alternative — a compositional one, of course. It only requires some tinkering with the syntax/semantics interface, and of course we need to assume that sentence meanings are relations between variable assignments, and everything will turn out nice and compositional.

Now let us pause for a brief moment. Meanings are supposed to be what? Relations between variable assignments? What notion of meaning is *that*? Let me redisplay this gem for an unobstructed view:

(A) The meaning of a sentence is a relation between functions from variables to individuals.

Much though I would like not to mince words at this point, it will be better if I do, so suffice it to say that this view on meaning strikes me as far-fetched. But I’m happy to concede that, *if* it is true, anaphora is a fully compositional phenomenon. What is more: *if this* is what meanings are, I’m equally happy to concede that obesity, romantic love, and global warming are compositional phenomena, too.

So what is the problem with compositionality? As I see it, it is really of a sociological nature, and best formulated as follows:

Let p be the proposition that natural languages are compositional:

- *A priori*, there is no reason to believe that p is true.
- There are very good reasons to believe that p is false.
- Nevertheless, many people working in semantics take it for granted that p is true.

So the compositionality problem is really an instance of irrational group behaviour, and thus understood it is surely among the most serious challenges the field is currently faced with.